

# Occupational stress of nurses in South Africa

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The objective of this study was to examine the construct validity and reliability of the Nursing Stress Indicator (NSI) and to identify differences between occupational stressors of professional and enrolled nurses. A cross-sectional survey design was used. A sample of professional nurses ( $N = 980$ ) and enrolled and auxiliary nurses ( $N = 800$ ) in South Africa was used. The NSI was developed as measuring instrument and administrated together with a biographical questionnaire. Five reliable stress factors, namely Patient Care, Job Demands, Lack of Support, Staff Issues, and Overtime were extracted. The most severe stressors for nurses included health risks posed by contact with patients, lack of recognition and insufficient staff. Watching patients suffer, demands of patients and staff issues were also severe stressors for professional nurses. The severity of stressors was higher for professional nurses (compared with enrolled and auxiliary nurses). Organisations that employ nurses should implement programmes to monitor and manage stress, specifically regarding staff issues and job demands.

**Opsomming**

Die doelstelling van hierdie studie was om die konstrukteldigheid en betroubaarheid van die *Nursing Stress Indicator* (NSI) te bepaal en verskille tussen die werkstressore vir professionele en ingeskrewe verpleegsters te bepaal. 'n Dwarssnee opname-ontwerp is gebruik. 'n Steekproef van professionele verpleegsters ( $N = 980$ ) en ingeskrewe staf- en assistent-verpleegsters ( $N = 800$ ) in privaat en provinsiale hospitale in Suid-Afrika is geneem. Die NSI is ontwikkel en saam met 'n biografiese vraelys op deelnemers toegepas. Vyf betroubare stresfaktore is onttrek, naamlik Pasiëntsorg, Werkseise, Gebrek aan Ondersteuning, Personeelaangeleenthede en Oortyd. Die ernstigste stressore vir verpleegsters was gesondheidsrisiko's a.g.v. kontak met pasiënte, gebrek aan erkenning en onvoldoende personeel. Om te sien hoe pasiënte ly, eise van pasiënte asook personeelaangeleenthede was ook ernstige stressore vir professionele verpleegsters. Die ernstigheid van stressore was hoër vir professionele verpleegsters (in vergelyking met ingeskrewe staf en assistent-verpleegsters). Organisasies wat verpleegsters indiensneem moet programme implementeer om stres te monitor en bestuur, spesifiek ten opsigte van personeelaangeleenthede en werkseise.

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## Background and problem statement

A stable and productive health service is of vital importance to any country. This includes the nursing profession which comprises by far the greatest component of this service section. The nursing profession is seen as a stressful and demanding profession (Carson, Bartlett & Croucher, 1991; Coffey & Coleman, 2001; Fagin, Brown, Bartlett, Lear & Carson, 1995). Stress as a phenomenon gained recognition in the nursing environment because of the data from patients and empirical studies by researchers that suggested that stress and health are closely linked. Nurses are seen to have more stress than most people due to the nature of the job and the system within which they work (Bond, 1986).

It is important to determine the stressors endemic to nursing in South Africa. In South Africa, nurses face various problems (Hartley, 2005). An inadequate supply of protective equipment, negligible waste disposal methods and high patient loads are some of the issues that threaten the well-being of health workers already critically understaffed. Nurses are routinely exposed to dangers such as viruses, bacteria and needle-prick injuries. Staff shortages often force nursing staff to do work outside their job definitions - often without appropriate training or remuneration. Overworked staff face the trauma and stress of increasing numbers of HIV/AIDS patients.

According to Spielberger and Vagg (1999), the identification of major sources of stress at work offers a twofold benefit for both management and employees; firstly by resulting in work environment changes that reduce stress and increase productivity, and secondly by facilitating the development of effective interventions that could reduce the debilitating effects of occupational stress. Meyerson (1994) and Handy (1988, 1991) showed that stress occurs in a particular context, since individuals differ in the meaning they attribute to stressful experiences.

Dewe (1989) adds another dimension to the measurement of stress in occupational settings by noting that the specific meaning attributed to stressful events and the perceived intensity should

also be extended to include the frequency of the experienced stressor. Consequently, severity of a stressor can be obtained where an infrequently experienced stressor is not overestimated by only taking its perceived intensity into account. A further useful taxonomy of stressors in terms of their intensity and frequency is the distinction between acute and chronic stressors. Whereas an acute stressor is derived from a rather sudden event with relative short duration in which an almost immediate psychological reaction is evoked, chronic stressors are experienced frequently and intensely (Farmer, 1990; Newton, 1989).

Consequently, the study of stressors specific to nursing in South Africa seems important. However, it is also important to establish the reliability and validity of a measure of perceived stress of nurses. The objectives of this study were to determine the construct validity and internal consistency of an occupational stress measure and to identify occupational stressors for nurses in South Africa.

## Occupational stress

The Spielberger State-Trait (STP) model of occupational stress (Spielberger, Vagg, & Wasala, 2003) conceptualises stress as a complex process that consists of three major components, namely sources of stress that are encountered in the work environment, the perception and appraisal of a particular stressor by an employee, and the emotional reactions that are evoked when a stressor is appraised as threatening.

The STP model of occupational stress focuses on the perceived severity and frequency of occurrence of two major categories of stressors, namely job pressures and lack of support (Spielberger et al., 2003). The STP model recognizes the importance of individual differences in personality traits in determining how workplace stressors are perceived and appraised. Occupational stress is defined as the mind-body arousal resulting from physical and/or psychological job demands. The appraisal of a stressor as threatening leads to anxiety and anger and the associated activation of the autonomic nervous system. If severe and persistent, the resulting physical and psychological strain may cause adverse behavioural consequences (Spielberger et al., 2003). Employees evaluate their work

environment in terms of the severity and frequency of occurrence of specific job demands and pressure and the level of support provided by other employees (supervisors and co-workers), as well as organisational features (policies and procedures). Failing to take the frequency of occurrence of a particular stressor into account may contribute to overestimating the effects of highly stressful situations that rarely occur, while underestimating the effects of moderately stressful events that are frequently experienced.

Lambert and Lambert (2001) found that the following factors in South Africa contribute to a stressful work environment for nurses: impaired communication with management, racism, lack of fair competitive remuneration and disregard for professional worth, non-conducive physical and psychological surroundings, a lack of support from supervisors, high responsibility, long working hours and task overload.

Nurses use the word stress to describe a combination of unpleasant situations and unpleasant inner personal experiences (Bond, 1986). Vachon (1987) found that much of the stress experienced by caregivers was not related to interaction with patients. She reported a distribution of variables as follows: illness - 15%, patient/family - 23%, occupational role - 26% and work environment - 36%.

Cavanagh (1997) divides stressors within the nursing profession in three categories, namely personal, interpersonal and work environment stressors. Personal stressors include an inability to manage home, work and study responsibilities. Interpersonal stressors reflect on relationships with doctors, supervisors, other senior personnel and colleagues (Basson & Van der Merwe, 1994). Work environment stressors include a high work load and long working hours (Basson & Van der Merwe, 1994); caring and dealing with pain, suffering and dying of patients; the strain of being exposed to making mistakes and managing demanding responsibilities (Cavanagh, 1997); role conflict and ambiguity (Levert, Lucas & Ortlepp, 2000) and under-staffing (Erasmus, Poggenpoel & Gmeiner, 1998; Kilfedder, Power & Wells, 2001).

A lack of autonomy at work might contribute to occupational stress of

nurses. For nurses that served in Vietnam, one of the hardest things was to give up on their autonomy. They were used to the mutual professional regard between physician and nurse in Vietnam. Back in the United States, nurses saw themselves slip into the traditional role of a "handmaiden". One of the nurses said this: "I questioned a doctor and got reprimanded. It was like a slap in the face, and I saw all my powers taken away from me" (Norman, 1990). Interviews with professional nurses whose roles were changed from the hospital environment to nursing roles in the community, showed their experience of an acute fear of their new professional autonomy. Community nurses become aware of their previously protected status as professionals who were not expected to think for themselves, or take any initiatives while working in hospitals (Roberts, 1994).

The emotional demands associated with caring for patients also contribute to occupational stress in nursing. Bond (1986) concluded that emotions have a bad name in nursing. The dangers of emotional involvement for nurses are often pointed out, but not the dangers of emotional shallowness. Emotional maturity is considered as the absence of emotions rather than skill in being aware of them and expressing them appropriately. "Getting emotional" is seen as failure, whereas being rational is over-valued. In an effort not to show emotions, nurses work harder. They do not discuss it with their colleagues and in the process they try killing off one of the greatest resources they have to cope with stress and for helping others do so. However, in trying not to show emotions, nurses might depersonalise their patients.

Dartington (1994) had an experience that sums up the emotional demands of nursing: "What I, the students and the tutors were all experiencing at first hand were the unconscious assumptions of the hospital system, which were that attachment should be avoided for fear of being overwhelmed by emotional demands that may threaten competence and that dependency on colleagues and supervisors should be avoided." Norman (1990) found that nurses insulate themselves, they avoid feeling sad or angry or helpless. A common feeling associated with death is the feeling of inadequacy. There is the grief about the

death itself and also the feeling of having failed to save a life (Mawson, 1994). Obholzer and Roberts (1994) state that staff working closely with people in great pain and with dying people experience much stress.

Roberts (1994) found in an old-age hospital that the nurses in the continuing care wards were low on morale, and relationships were antagonistic towards the nurses in the other wards. These nurses worked in the wards where there was no hope for the elderly to heal and leave the hospital. The nurses receive little positive feedback from colleagues, patients or families of the patients. In fact, many of their patients died soon after being transferred to the ward. Nurses in these wards were deprived of hope and the satisfaction of seeing their patients improve and moving back into the community.

Lack of resources is another source of stress for nurses. James (2002) found that nurses often experience a lack or inadequate amount of resources. This lack of resources leaves the nurses with a feeling of dissatisfaction because they cannot do their nursing work as expected of them. Resources include items such as staff, linen, food and equipment. Furthermore, support by nurse managers seems to be very important to nurses and the lack thereof is a source of stress. James (2002) found that the nurses she interviewed felt unsafe and insecure to operate optimally as nurses, because of the lack of support and favouritism practised and displayed by the nurse managers.

Tummers, Janssen, Landeweerd, and Houkes (2001) found that workload was high for nurses. They described workload as "budget constraints with the consequences of staff shortages, low salary, low career opportunity, and less time for direct patient care." Their studies indicate that workload is an important predictor of emotional exhaustion. Govender (1995) found in her research that, in comparison with professional nurses, nurses' seniority correlates positively and significantly with the total sources of stress scores, especially with issues related to workload and conflict with doctors. Shift work places a lot of stress on the nurse. Two out of the eight most common problems of shift work are the major communication problems among shifts and informal clique forming

on any shift, which is viewed as negative and intimidating (Schaffner & Bermingham, 1993).

Relationships with colleagues, nurse managers and doctors can cause stress for the nurse. When nurses feel helpless towards their patients, they tend to experience a lot of anger and frustration, but this is often denied. This causes their negative feelings to erupt against one another or to be directed at their superiors. Sometimes doctors prescribe pain-inflicting procedures and the nurses unconsciously blame the doctors for that. The structure of the relationship between the doctors and nurses does not allow the far more experienced nurses to advise doctors on the best ways to do a particular procedure (Cohn, 1994). In interviewing urban and rural nurses, Wilkes and Beale (2001) found that nurses felt that conflict with doctors causes stress for nurses. They had different ideas on medication, and the doctors were also unable to support nurses when they needed it.

It seems that in order to protect themselves, nurses would deny a colleague support. Mawson (1994) experienced in the Walsingham Child Health Team that the team does not want to become involved with the feelings of guilt in a member, caused by the pain-inflicting procedures unfortunately necessary for her patient. The team does not want "the pain in their work made more acute".

A vast number of stressors for nurses were identified. Not all of them are applicable to all nurses at all times. In most of the research, the researchers concentrated on the stress of nurses in a specific health care unit, intensive care (Couden, 2002, De Jonge, De Rijk & Schaufeli, 2001), psychiatric or mental wards (Erasmus et al., 1998; Humpel & Caputi, 2001; Levert et al., 2000), gynaecology (Orji, Fasubaa, Onwudiegwu, Dare & Ogunniyi, 2002), general nurses (Yip, 2001), conditions such as HIV/AIDS and cancer (Lempp, 1995), and healthcare management (Rodham, 2002). A few comparative studies were identified: emergency department and general ward nurses (Yang et al., 2001), general and mental health nurses (Tummers, Janssen, Landeweerd & Houkes, 2001), and urban and rural nurses (Wilkes & Beale, 2001). No study could be found that compared

**Table 1 Characteristics of the participants (n = 1780)**

Item	Category	Percentage
Home Language	Afrikaans	54,15
	English	30,94
	Sepedi	1,77
	Sesotho	1,49
	Setswana	3,41
	SiSwati	0,14
	Tshivenda	0,07
	IsiNdebele	0,07
	IsiXhosa	2,34
	IsiZulu	5,18
	Other	0,43
Rank	Enrolled auxiliary nurse	21,29
	Enrolled nurse (staff nurse)	19,71
	Registered nurse	43,17
	Unit manager	9,64
	Process manager	1,29
	Nursing manager	0,86
	Nursing services specialist	0,22
	Other position	3,81
Province	Eastern Cape	6,91
	Free State	5,20
	Gauteng	45,12
	KwaZulu-Natal	22,02
	Mpumalanga	6,84
	North West	6,99
	Western Cape	6,91
Gender	Male	2,88
	Female	97,12

professional, enrolled and auxiliary nurses.

## Method

### Research design

A cross-sectional survey design was used. The design can be used for the description of the population at a specific point in time (Shaughnessy & Zechmeister, 1997). Considerations regarding ethical issues were addressed by means of active inclusion and consultation with the relevant stakeholders at the Department of Health, hospital groups in South Africa, as well as with the participants in the study. The

objectives of the study were explained to, and written consent obtained from, the participants at their place of work where the data collection also took place. Confidentiality and anonymity were assured.

### Participants

Random samples ( $N = 1780$ ) were taken from hospital wards, psychiatric wards, community/occupational services and nursing management. The sample was stratified according to categories of nurses and included professional nurses ( $N = 980$ ), as well as enrolled and auxiliary

nurses ( $N = 800$ ). The characteristics of the study population are reported in Table 1.

Table 1 shows that more than half of the sample was made up of Afrikaans-speaking women (54,15%). Furthermore, it seems that registered (professional) nurses form the biggest part of the ranks of the different nurse categories (43,17%). Seven of the nine provinces of South Africa participated in the study. Women are by far the biggest part of the sample (97,12%).

### Measuring instrument

The Nursing Stress Indicator (NSI) was developed based on the STP model of occupational stress (Spielberger et al., 2003). The NSI was developed for the job stressors specific to the nursing environment in two major categories, namely job pressures and lack of support. Items for the NSI were generated based on a literature review of occupational stress in nursing and by interviewing professional, enrolled and auxiliary nurses. The NSI consists of 124 items. Firstly, participants rated each of the 62 statements in terms of perceived intensity of the particular stressor on a 9-point scale, ranging from 1 (*low*) to 9 (*high*). In the second part of the questionnaire, the participants were asked to respond in terms of perceived frequency in experiencing these stressors over a period of the past 6 months on a 10 point scale ranging from 0 (*no days*) to 9+ (*more than 9 days*). The severity of a stressor is expressed as the product of the intensity and frequency thereof.

A biographical questionnaire was also included. Participants were given the option of providing their names and contact details if they wanted feedback. Other information included in the questionnaire was rank, working full time or part time, unit, time in unit, specialised training needed for unit, time in profession, shifts, province, education, gender, marital status, language and health.

### Statistical analysis

The SAS program was used to carry out statistical analyses regarding the reliability and construct validity of the NSI (SAS Institute, 2000). Principal component extraction with a varimax rotation was carried out through SAS FACTOR on the 124 items of the NSI for a sample of 1780 professional, enrolled

**Table 2 Factor loadings, communalities ( $h^2$ ), percentage variance and covariance for principal factor extraction and varimax rotation on NSI items**

Item	$F_1$	$F_2$	$F_3$	$F_4$	$F_5$	$h^2$
Death of a patient with whom you have developed a close relationship	0,79	0,00	0,00	0,00	0,00	0,66
Watching a patient suffer	0,76	0,00	0,00	0,00	0,00	0,64
Death of a patient	0,71	0,00	0,00	0,00	0,00	0,58
Making a mistake when treating a patient	0,71	0,00	0,00	0,00	0,00	0,63
Communicating with a patient about death	0,65	0,00	0,00	0,00	0,00	0,54
Disagreement with medical practitioner or colleague concerning the treatment of a patient	0,64	0,00	0,00	0,00	0,00	0,58
Patients who fail to improve	0,64	0,00	0,00	0,00	0,00	0,53
Inadequate information from a medical practitioner regarding the medical condition of the patient	0,60	0,00	0,00	0,00	0,00	0,55
Demands of clients/patients	0,00	0,74	0,00	0,00	0,00	0,61
Stock control in the ward/unit/institution	0,00	0,63	0,00	0,00	0,00	0,46
Language and communication barriers with clients/patients	0,00	0,58	0,00	0,00	0,00	0,43
Adhering to the budget of the hospital/institution	0,00	0,58	0,00	0,00	0,00	0,40
Dealing with other health care professionals.(e.g. dieticians, social workers, pharmacists)	0,00	0,56	0,00	0,00	0,00	0,37
Management of staff	0,00	0,56	0,00	0,00	0,00	0,40
Dealing with difficult patients	0,00	0,54	0,00	0,00	0,00	0,46
Excessive involvement in committee meetings	0,00	0,53	0,00	0,00	0,00	0,39
Meeting deadlines	0,00	0,51	0,00	0,00	0,00	0,43
Frequent changes from boring to demanding activities	0,00	0,46	0,00	0,00	0,00	0,41
Security risk posed in area where your job is located	0,00	0,46	0,00	0,00	0,00	0,30
Health risk posed by contact with patients	0,00	0,46	0,00	0,00	0,00	0,32
Difficulty getting along with supervisor/manager	0,00	0,00	0,72	0,00	0,00	0,58
Poor or inadequate supervision/management	0,00	0,00	0,65	0,00	0,00	0,55
Inadequate support by supervisor/manager	0,00	0,00	0,62	0,00	0,00	0,52
Conflict with a supervisor/manager	0,00	0,00	0,61	0,00	0,00	0,58
Experiencing negative attitudes towards the organisation	0,00	0,00	0,51	0,00	0,00	0,44
Lack of support from colleagues	0,00	0,00	0,50	0,00	0,00	0,47
Inadequate or poor quality equipment	0,00	0,00	0,49	0,00	0,00	0,40
Lack of recognition for good work	0,00	0,00	0,46	0,00	0,00	0,39
Lack of participation in policy-making decisions	0,00	0,00	0,45	0,00	0,00	0,39
Lack of opportunity to talk openly with other staff members	0,00	0,00	0,45	0,00	0,00	0,40
Insufficient personnel to handle workload	0,00	0,00	0,00	0,59	0,00	0,52
Shortage of staff	0,00	0,00	0,00	0,55	0,00	0,50
Poorly motivated co-workers	0,00	0,00	0,00	0,50	0,00	0,54
Insufficient time to perform tasks	0,00	0,00	0,00	0,47	0,00	0,54
Fellow workers not doing their job	0,00	0,00	0,00	0,45	0,00	0,47
Covering work for another employee	0,00	0,00	0,00	0,45	0,00	0,46
Working overtime	0,00	0,00	0,00	0,00	0,67	0,53
Working emergency hours	0,00	0,00	0,00	0,00	0,61	0,43
Working overtime due to "Moonlighting"	0,00	0,00	0,00	0,00	0,49	0,31
Squared Multiple Correlations	0,89	0,86	0,81	0,76	0,71	
Percentage variance	11,44	11,29	9,66	7,98	3,74	
Percentage covariance	25,92	25,59	21,90	18,10	8,48	

Factor labels:  $F_1$ : Stress: Patient Care,  $F_2$ : Stress: Job Demands,  $F_3$ : Stress: Lack support,  $F_4$ : Stress: Staff Issues,  $F_5$ : Stress: Overtime.

Descriptive statistics of stressor intensity and frequency items: professional and enrolled nurses

	Professional Nurses					Enrolled Nurses			
	Intensity		Frequency		Severity	Intensity		Frequency	
	Mean	SD	Mean	SD		Mean	SD	Mean	SD
RELATIONSHIP WITH PATIENTS									
Relationship with whom you have developed a close relationship	5,50	3,12	1,77	2,58	9,74	4,77	3,05	2,28	2,58
Relationship with whom you think you will suffer	6,21	2,72	3,87	3,33	24,03	5,18	2,99	3,12	3,33
Relationship with whom you think you will not suffer	5,28	2,76	2,97	3,14	15,68	4,47	2,83	2,87	3,14
Relationship with whom you think you will suffer when treating a patient	5,76	3,10	1,18	1,92	6,80	3,95	2,96	1,30	2,96
Relationship with whom you think you will not suffer with a patient about death	4,68	2,71	2,57	2,87	12,03	3,90	2,73	2,05	2,87
Relationship with whom you think you will suffer with medical practitioner or colleague concerning the patient	5,02	2,67	2,32	2,54	11,65	3,42	2,71	1,45	2,54
Relationship with whom you think you will not suffer to improve	4,94	2,56	4,06	3,25	20,06	4,35	2,48	3,28	3,25
Relationship with whom you think you will suffer information from a medical practitioner regarding the medical patient	5,31	2,63	3,32	3,05	17,63	4,22	2,79	2,48	3,05
WORKING CONDITIONS									
DEMANDS									
High number of clients/patients	5,07	2,30	5,87	3,15	29,76	4,70	2,62	4,66	3,15
High workload in the ward/unit/institution	4,98	2,41	5,54	3,30	27,59	4,40	2,70	4,40	3,30
Communication barriers with clients/patients	4,20	2,19	3,44	2,89	14,45	4,12	2,45	3,33	2,89
Low budget of the hospital/institution	4,75	2,40	4,96	3,36	23,56	3,92	2,69	3,38	3,36
Low resources for health care professionals (e.g. dieticians, social workers, etc.)	3,33	2,00	4,21	3,44	14,02	3,00	2,18	2,95	3,44
High number of staff	4,65	2,40	5,08	3,43	23,62	3,56	2,69	2,44	3,43
Difficult patients	5,25	2,36	4,61	3,13	24,2	4,89	2,59	4,42	3,13
Participation in committee meetings	4,13	2,40	3,34	3,09	13,79	3,37	2,45	2,24	3,09
High number of patients	5,10	2,33	4,67	3,21	23,82	4,18	2,67	3,17	3,21
Transition from boring to demanding activities	4,65	2,31	4,52	3,24	21,02	4,19	2,48	3,41	3,24
Working in area where your job is located	3,89	2,51	3,34	3,09	12,99	3,89	2,68	2,23	3,09
Working by contact with patients	5,42	2,66	5,49	3,34	29,76	5,54	2,73	5,14	3,34

	Professional Nurses					Enrolled Nurses			
	Intensity		Frequency		Severity	Intensity		Frequency	
	Mean	SD	Mean	SD		Mean	SD	Mean	SD
<b>ISSUES, LACK OF SUPPORT</b>									
Working with supervisor/manager	4,10	2,73	1,95	2,57	8,00	3,50	2,63	1,96	2,74
Supervision/management	4,76	2,63	2,68	2,88	12,76	3,89	2,70	2,46	2,95
Feedback by supervisor/manager	5,33	2,61	3,10	3,06	16,52	4,59	2,66	2,81	3,01
Supervisor/manager	4,58	2,77	2,10	2,64	9,62	3,52	2,69	1,81	2,51
Positive attitudes towards the organisation	4,84	2,47	3,77	3,17	18,25	4,06	2,64	3,07	3,10
Relationship with colleagues	4,97	2,51	2,87	2,75	14,26	4,35	2,51	2,70	2,75
Quality equipment	5,18	2,74	2,82	2,90	14,61	4,31	2,73	2,69	2,94
Compensation for good work	5,63	2,35	4,20	3,29	23,65	5,33	2,70	4,04	3,37
Participation in policy-making decisions	5,04	2,46	2,94	3,07	14,82	3,94	2,55	2,21	2,88
Ability to talk openly with other staff members	4,28	2,41	2,57	2,72	11,00	4,01	2,40	2,74	2,85
<b>WORKING ISSUES</b>									
Ability to handle workload	6,30	2,27	5,67	3,08	35,72	5,45	2,75	4,69	3,34
	6,74	2,32	5,93	3,20	39,97	6,17	2,73	5,44	3,28
Team-workers	5,90	2,37	4,90	3,07	28,91	4,97	2,64	4,41	3,27
Ability to perform tasks	5,83	2,45	4,40	3,14	25,65	4,89	2,61	3,30	3,09
Ability to do their job	6,30	2,27	5,09	3,01	32,07	5,45	2,75	4,34	3,30
Relationship with another employee	4,97	2,60	4,15	3,23	20,63	4,79	2,77	4,04	3,23
<b>WORKING TIME</b>									
	4,07	2,52	4,49	3,52	18,27	3,56	2,49	3,76	3,43
Working hours	3,41	2,62	2,38	3,05	8,12	2,83	2,56	1,90	2,88
Due to "Moonlighting"	2,84	2,77	1,83	2,99	5,20	2,75	2,64	2,00	3,06

**Table 4 Descriptive statistics, alpha coefficients and mean inter-item correlation coefficients of the NSI factors**

Item	Mean	SD	Skewness	Kurtosis	r-Mean	$\alpha$
Patient care	39,08	18,00	-0,31	-0,87	0,57	0,91
Job demands	52,99	19,42	-0,05	-0,42	0,38	0,88
Lack of support	45,61	18,41	-0,05	-0,63	0,44	0,89
Staff issues	34,27	11,68	-0,54	-0,40	0,49	0,85
Overtime	9,82	6,21	0,37	-0,66	0,44	0,70

and auxiliary nurses. Cronbach alpha coefficients and inter-item correlations were used to assess the internal consistency of the measuring instrument. T-tests were used to determine differences between professional nurses on the one hand and enrolled and auxiliary nurses on the other hand. A cut-off point of  $d = 0,50$  (medium effect, Cohen, 1988) was set for the practical significance of differences between means.

## Results

The results of the factor analysis are shown in Table 2. Loadings of variance on factors, communalities and percentage of variance and covariance are shown. Variables are ordered and grouped by size of loading to facilitate interpretation. Zeros represent loadings that were  $<0,45$  (20% of variance). Labels for each factor are suggested in the footnote.

The first factor dealt with patient care such as death of a patient and watching a patient suffer. This factor was labelled *patient care*. The second factor included items such as management of staff and meeting deadlines. This factor was labelled *job demands*. The third stress factor included items such as inadequate support by supervisor and lack of support from colleagues. This factor was labelled *lack of support*. The fourth stress factor dealt with staff issues such as shortage of staff and insufficient time to perform tasks. This factor was labelled *staff issues*. The fifth stress factor dealt with overtime with items such as working overtime and working overtime due to "Moonlighting". This factor was labelled *overtime*.

Descriptive statistics for the intensity, frequency and severity of stressors for nurses are given in Table 3. Severity is expressed as the product of intensity and

frequency.

The results in Table 3 shows that professional nurses (compared with enrolled and auxiliary nurses) obtained higher scores on stressors. The most severe stressors for professional nurses were the following: watching a patient suffer, demands of patients, stock control in the ward or unit, health risks posed by contact with patients, lack of recognition for good work, staff issues, such as insufficient staff, poorly motivated workers, insufficient time to perform tasks and fellow workers not doing their jobs. The most severe stressors for enrolled and auxiliary nurses were the following: health risks posed by contact with patients, lack of recognition for good work, and insufficient staff.

Descriptive statistics, alpha coefficients and mean inter-item correlation coefficients of the NSI factors are reported in Table 4.

Table 4 shows that the alpha coefficients of the five extracted factors of the NSI are highly acceptable when compared to the guideline of 0,70 (Nunnally & Bernstein, 1994). The mean inter-item correlation coefficients are in the recommended range ( $0,15 < r < 0,50$ ) (Clark & Watson, 1995).

The significance of differences between intensity of stressors for professional and enrolled and auxiliary nurses is reported in Table 5.

Table 5 shows practically significant differences (of medium effect) between professional nurses on the one hand and enrolled and auxiliary nurses only regarding the following stressors: a) Professional nurses (compared with enrolled and auxiliary nurses) obtained a higher score on stress because of the possibility of making a mistake when treating a patient. b) Professional nurses (compared with enrolled and auxiliary

nurses) obtained a higher score on stress because of disagreement with medical practitioners or colleagues concerning the treatment of a patient.

## Discussion

It was the aim of this study to determine the reliability and construct validity of the NSI and to identify the occupational stressors for nurses. Principal component analysis resulted in five factors, namely patient care, job demands, lack of support, staff issues, and overtime, describing the perceived occupational stressors for nurses. The reliabilities (coefficient alphas) of the five factors were acceptable.

The first factor, patient care, emphasises the physical help/care provided by nurses to patients. These include death of a patient with whom you have developed a close relationship, watching a patient suffer, death of a patient, making a mistake when treating a patient, communicating with a patient about death and disagreement with a medical practitioner or colleague concerning the treatment of a patient. Mawson (1994) and Obholzer and Roberts (1994) regard these as severe stressors for nurses. However, the results showed that severity of stress because of patient care was substantially lower than other stressors. Only one stressor, namely watching a patient suffer, had a higher severity than other stressors. Studies in other contexts (e.g. Kop & Euwema, 2001) confirm that stressors related to the specific occupation individuals find themselves in, are often less severe than organisational stressors. In comparing professional and enrolled and auxiliary nurses' stress in respect of the first factor, it becomes clear that the severity of stressors for professional nurses is higher than that of the enrolled and auxiliary nurses.

The items loading on the second factor refer to the demands associated with the



**Table 5 The significance of differences between intensity of stressors for professional and enrolled nurses**

Item	Professional Nurses		Enrolled Nurses		<i>d</i>
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	
<b>Stress: Patient Care</b>	42,71	17,59	34,27	17,41	0,48
Death of a patient with whom you have developed a close relationship	5,50	3,12	4,77	3,05	0,23
Watching a patient suffer	6,21	2,72	5,18	2,99	0,34
Death of a patient	5,28	2,76	4,47	2,83	0,29
Making a mistake when treating a patient	5,76	3,10	3,95	2,96	0,58*
Communicating with a patient about death	4,68	2,71	3,90	2,73	0,29
Disagreement with medical practitioner or colleague concerning the treatment of a patient	5,02	2,67	3,42	2,71	0,59*
Patients who fail to improve	4,94	2,56	4,35	2,48	0,23
Inadequate information from a medical practitioner regarding the medical condition of the patient	5,31	2,63	4,22	2,79	0,39
<b>Stress: Job Demands</b>	55,45	18,84	49,74	19,72	0,29
Demands of clients/patients	5,07	2,30	4,70	2,62	0,14
Stock control in the ward/unit/institution	4,98	2,41	4,40	2,70	0,21
Language and communication barriers with clients/patients	4,20	2,19	4,12	2,45	-
Adhering to the budget of the hospital/institution	4,75	2,40	3,92	2,69	0,31
Dealing with other health care professionals.(e.g. dieticians, social workers, pharmacists)	3,33	2,00	3,00	2,18	0,15
Management of staff	4,65	2,40	3,56	2,69	0,41
Dealing with difficult patients	5,25	2,36	4,89	2,59	0,14
Excessive involvement in committee meetings	4,13	2,40	3,37	2,45	0,31
Meeting deadlines	5,10	2,33	4,18	2,67	0,34
Frequent changes from boring to demanding activities	4,65	2,31	4,19	2,48	0,19
Security risk posed in area where your job is located	3,89	2,51	3,89	2,68	-
Health risk posed by contact with patients	5,42	2,66	5,54	2,73	-
<b>Stress: Lack of Support</b>	48,71	18,38	41,50	17,63	0,39
Difficulty getting along with supervisor/manager	4,10	2,73	3,50	2,63	0,22
Poor or inadequate supervision/management	4,76	2,63	3,89	2,70	0,32
Inadequate support by supervisor/manager	5,33	2,61	4,59	2,66	0,28
Conflict with a supervisor/manager	4,58	2,77	3,52	2,69	0,38
Experiencing negative attitudes towards the organisation	4,84	2,47	4,06	2,64	0,30
Lack of support from colleagues	4,97	2,51	4,35	2,51	0,25
Inadequate or poor quality equipment	5,18	2,74	4,31	2,73	0,32
Lack of recognition for good work	5,63	2,35	5,33	2,70	-
Lack of participation in policy-making decisions	5,04	2,46	3,94	2,55	0,43
Lack of opportunity to talk openly with other staff members	4,28	2,41	4,01	2,40	-
<b>Stress: Staff Issues</b>	36,12	11,02	31,81	12,06	0,36
Insufficient personnel to handle workload	6,30	2,27	5,45	2,75	0,31
Shortage of staff	6,74	2,32	6,17	2,73	0,21
Poorly motivated co-workers	5,90	2,37	4,97	2,64	0,35
Insufficient time to perform tasks	5,83	2,45	4,89	2,61	0,36
Fellow workers not doing their job	6,30	2,27	5,45	2,75	0,31
Covering work for another employee	4,97	2,60	4,79	2,77	-
<b>Stress: Overtime</b>	10,32	6,28	9,14	6,07	0,19
Working overtime	4,07	2,52	3,56	2,49	0,20
Working emergency hours	3,41	2,62	2,83	2,56	0,22
Working overtime due to "Moonlighting"	2,84	2,77	2,75	2,64	-

\* Practically significant difference:  $d \geq 0,50$  (medium effect)

job of the nurse, including workload (Tummers et al., 2001). Job demands include stressors such as health risk posed by contact with patients, meeting deadlines, dealing with difficult patients, demands of clients/patients. Health risks posed by contact with patients was the most severe stressor for professional nurses as well as enrolled and auxiliary nurses. For professional nurses, stressors such as demands of patients and stock control were also relatively severe. Administrative demands associated with nursing were also more stressful for professional nurses (compared to enrolled and auxiliary nurses).

The third factor indicates stress because of a lack of support in the organisation as well as from supervisors and colleagues. The items loading on this factor include the following: lack of recognition for good work, inadequate support by supervisor/manager, inadequate or poor quality equipment, lack of support from colleagues. Stressors loading on this factor were also relatively less severe, except for one stressor, namely a lack of recognition for good work. This was a relatively severe stressor for all categories of nurses.

The fourth factor was about stress because of staff issues and included items such as shortage of staff, fellow workers not doing their job, poorly motivated co-workers, covering work for another employee and insufficient personnel to handle workload. This factor is also related to workload of nurses (Tummers et al., 2001). Stressors related to staff issues were clearly the most severe of all stressors measured by the NSI for all categories of nurses. Severe stressors include insufficient staff to handle the workload, shortage of staff, poorly motivated co-workers and fellow workers not doing their jobs. While it seems that the shortage of staff is a problem, training and motivation of current staff also seem to be problematic. Therefore, in addition to a shortage of staff, poor performance management might be the most important problem causing stress for nurses.

The fifth factor concerned stress because of overtime and include items such as working overtime, working emergency hours and working overtime due to "moonlighting". Although

working overtime was a more severe stressor for professional nurses (compared with enrolled and auxiliary nurses), the severity of stress because of overtime was relatively low for all categories of nurses.

In the total sample of professional nurses, stressors that could be regarded as serious include shortage of staff, insufficient personnel to handle workload, fellow workers not doing their job, health risk posed by contact with patients, demands of clients/patients and poorly motivated co-workers. In the total sample for the enrolled and auxiliary nurses, stressors that could be regarded as serious include a shortage of staff, health risk posed by contact with patients, insufficient personnel to handle workload and fellow workers not doing their job. Comparing the five factors, it becomes clear that stress because of staff issues were the most severe for professional nurses as well as enrolled and auxiliary nurses.

Stressors that showed a medium intensity and frequency can typically be placed under the description of chronic stressors. For the professional nurses, these items deal exclusively with events that can be considered daily occurrences in the nursing environment (except for two items, dealing with difficult patients and watching a patient suffer), for example, insufficient time to perform tasks, meeting deadlines, management of staff, adhering to the budget of the hospital/institution, lack of recognition for good work. Items that showed medium intensity and frequency for the enrolled and auxiliary nurses include the following: poorly motivated co-workers, demands of clients/patients, dealing with difficult patients, lack of recognition for good work, stock control in the ward/unit/institution, and covering work for other employees. The stressors for the enrolled and auxiliary nurses are a combination of staff issues, job demands, and lack of support.

The findings of this study indicate that professional nurses (compared with enrolled and auxiliary nurses) experienced more stress regarding the possibility of making a mistake when treating a patient. Also professional nurses experience more stress because of disagreement with medical practitioners or colleagues concerning the treatment of a patient.

## Recommendations

Based on the findings of this study it is recommended that organisations that employ nurses should implement programmes to reduce stress because of staff issues and job demands. If these stressors are allowed to continue unattended, they can expect to find negative costs such as burnout, employee turnover and lowered levels of service. Specifically, programmes should be implemented that improve recruitment, selection and performance management (including performance appraisal, training and creating a motivational environment). Furthermore, support systems, such as counselling services, should be made available to nursing staff of all categories.

In order to reduce the impact of stress on service delivery and staff motivation, it is recommended that stress management programmes should include the proactive identification of stress as well as the evaluation of these stressors in terms of severity and impact. Standardised and validated measuring instruments should be used and the exercise should be performed at least once every two years. Early identification of stress risks can provide for the proactive management of risk groups, customised interventions (versus generic interventions), and more effective stress risk control. Linking stress to burnout, engagement, ill-health and commitment could further stress management towards proactive, preventative and promotive health and wellness care in the nursing environment.

In terms of perceived strain, this study is a first step towards the development of a perceived stressor profile for nurses in South Africa. It is recommended that the study be expanded to all the provinces of South Africa. It is important for future research in the nursing environment to take into account the physiological, psychological and behavioural strains. Also, further refining and testing of the NSI is needed in other nursing samples. Future studies could focus on the staff issue stressors and their link to the mass exodus of South African nurses. It is recommended that future studies validate findings with regard to the equal comparison of the perceived strain construct across cultural groups. Cross-cultural comparisons would greatly enhance validity of findings in terms of the multi-cultural South-African context.

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